

## DECLARATION

**COPY**

## INVENTORSHIP IDENTIFICATION

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor (*if only one name is listed below*) or an original, first and joint inventor (*if plural names are listed below*) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

**MEMS DIGITAL-TO-ACOUSTIC TRANSDUCER WITH ERROR CANCELLATION**

## TITLE OF INVENTION

## SPECIFICATION IDENTIFICATION

the specification of which:

- (a) ☐ is attached hereto.
- (b) ☒ was filed on September 13, 1999, as ☒ Serial No. 09/395,073  
☐ and was amended on            (*if applicable*).
- (c) ☐ was described and claimed in PCT International Application No.            filed on             
☐ and was amended on            (*if applicable*).

## ACKNOWLEDGMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56.

**PRIORITY CLAIMS UNDER 35 U.S.C. § 119(a)-(d)**  
(Prior Foreign/Pct Application(S) Filed Within 12 Months  
(6 Months For Design) Prior To This Application)

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate(s) or 365(a) of any PCT international application(s) which designated at least one country other than the United States of America, listed below and have also identified below any foreign application(s) for patent or inventor's certificate(s) or any PCT international application(s) having a filing date before that of the application(s) of which priority is claimed.

Application Number	Country or PCT	Date Of Filing (Day, Month, Year)	Priority not Claimed <input type="checkbox"/>	Certified Copy Attached? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/>

## CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S) UNDER 35 U.S.C. § 119(e)

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

Provisional Application Number	Filing Date

**CLAIM FOR BENEFIT OF EARLIER US/PCT APPLICATION(S) UNDER 35 U.S.C. 120**

(All Foreign Application(S), If Any, Filed More Than 12 Months  
(6 Months For Design) Prior To This U.S. Application)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) or 365(c).PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37, Code of Federal Regulations, § 1.56, which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application.

U.S Parent Application No.	PCT Parent Application No.	Date Of Filing (Day, Month, Year)	Parent Patent No. (If applicable)

**DECLARATION**

I hereby declare that my presentation of this paper constitutes a certification under 37 C.F.R § 10.18, which provides, in part, that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful statements may jeopardize the validity of the application and any patent issuing therefrom.

## SIGNATURE(S)

## Inventor(s)

Wayne A. Loeb  
 (GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)  
 Inventor's signature *Wayne A. Loeb*  
 Date OCT 20 1999 Country of Citizenship USA  
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John J. Neumann, Jr.  
 (GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)  
 Inventor's signature *John J. Neumann, Jr.*  
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Kaigham J. Gabriel  
 (GIVEN NAME) (MIDDLE INITIAL OR NAME) FAMILY (OR LAST NAME)  
 Inventor's signature *Kaigham J. Gabriel*  
 Date October 26, 1999 Country of Citizenship USA  
 Residence Pittsburgh, PA 15217  
 Post Office Address: 5501 Aylesborough Avenue, Pittsburgh, PA 15217

- ☐ Signature by administrator(trix), or legal representative for deceased or incapacitated inventor. Number of pages added \_\_\_\_\_.  
☐ Signature for inventor who refuses to sign or cannot be reached by person authorized under 37 CFR 1.47. Number of pages added \_\_\_\_\_.  
☐ Added page for signature by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time. (37 CFR 1.47) Number of pages added \_\_\_\_\_.  
☐ Authorization of attorney(s) to accept and follow instructions from representative.  
☒ This declaration ends with this page.

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FEBRUARY 22, 2000

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JONATHAN C. PARKS ESQ.  
HENRY W. OLIVER BUILDING  
535 SMITHFIELD STREET  
PITTSBURGH, PA 15222-2313



\*101207799A\*

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RECORDATION DATE: 11/12/1999

REEL/FRAME: 010390/0429  
NUMBER OF PAGES: 6

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

**ASSIGNOR:**

LOEB, WAYNE A.

DOC DATE: 10/26/1999

**ASSIGNOR:**

NEUMANN, JOHN J.

DOC DATE: 10/26/1999

**ASSIGNOR:**

GABRIEL, KAIGHAM J.

DOC DATE: 10/26/1999

**ASSIGNEE:**

CARNEGIE MELLON UNIVERSITY  
5000 FORBES AVENUE  
PITTSBURGH, PENNSYLVANIA 15213

SERIAL NUMBER: 09395073  
PATENT NUMBER:

FILING DATE: 09/13/1999  
ISSUE DATE:

**RECEIVED**

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FEB 28 2000

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TERMI WATSON

KIRKPATRICK & LOCKHART LLP

010390/0429 PAGE 2

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## Correspondent Name and Address

Area Code and Telephone Number 

Name	<input type="text" value="Jonathan C. Parks, Esquire"/>
Address (line 1)	<input type="text" value="Kirkparrick &amp; Lockhart LLP"/>
Address (line 2)	<input type="text" value="Henry W. Oliver Building"/>
Address (line 3)	<input type="text" value="535 Smithfield Street"/>
Address (line 4)	<input type="text" value="Pittsburgh, PA 15222-2312"/>

## Pages

Enter the total number of pages of the attached conveyance document  
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## Application Number(s) or Patent Number(s)

☐ Mark if additional numbers attached

Enter either the Patent Application Number or the Patent Number (DO NOT ENTER BOTH numbers for the same property).

## Patent Application Number(s)

<input type="text" value="09/395,073"/>	<input type="text"/>	<input type="text"/>
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## Patent Number(s)

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Execution Date  
Month Day Year

Name (line 1)

Kaigham J. Gabriel

10/26/99

Name (line 2)

Execution Date  
Month Day Year

Name (line 1)

Name (line 2)

Execution Date  
Month Day Year

Name (line 1)

Name (line 2)

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## Application Number(s) or Patent Number(s)

☐ Mark if additional numbers attached

Enter either the Patent Application Number or the Patent Number (DO NOT ENTER BOTH numbers for the same property).

## Patent Application Number(s)

## Patent Number(s)





Attorney's Docket No. 99395

**PATENT**

For: ☒ U.S. and/or ☒ Foreign Rights  
For: ☒ U.S. Application or  
☐ U.S. Provisional Application  
For: ☐ U.S. Patent  
For: ☐ PCT Application  
By: Multiple Inventors

**ASSIGNMENT OF INVENTION (MULTIPLE INVENTORS)**

In consideration of the payment by ASSIGNEE to ASSIGNOR of the sum of One Dollar (\$1.00), the receipt of which is hereby acknowledged, and for other good and valuable consideration,

**ASSIGNORS (Inventors):**

Wayne A. Loeb  
(type or print name of inventors)

5557 Hobart #12  
Pittsburgh, PA 15217 USA  
Address Nationality

John J. Neumann, Jr.

5231 Fifth Avenue, Apt. D-1  
Pittsburgh, PA 15232 USA

Kaigham J. Gabriel

5501 Aylesborough Avenue  
Pittsburgh, PA 15217 USA  
*10/26/99*

hereby sells, assigns and transfers to

ASSIGNEE:

Carnegie Mellon University  
(type or print name of ASSIGNEE)

5000 Forbes Avenue  
Address

(a non-profit Pennsylvania organization)  
Nationality

Pittsburgh, PA 15213

and the successors, assigns and legal representatives of the ASSIGNEE

(complete one of the following)

☒ the entire right, title and interest

☐ an undivided \_\_\_\_\_ percent ( \_\_\_\_\_ %) interest for the United States and its territorial possessions

(check the following box, if foreign rights are also to be assigned)

☒ and in all foreign countries, including all rights to claim priority, in and to any and all improvements which are disclosed in the invention entitled: **MEMS DIGITAL-TO-ACOUSTIC TRANSDUCER WITH ERROR CANCELLATION**

(check and complete (a), (b), (c), (d), (e), (f) or (g))

and which is found in

(a) ☐ U.S. patent application executed on even date herewith

(b) ☐ U.S. patent application executed on \_\_\_\_\_

(c) ☐ U.S. provisional application naming the above inventor(s) for the above-entitled invention

☐ Express mail label no.: \_\_\_\_\_

Mailed: \_\_\_\_\_

☐ To comply with 37 CFR 3.21 for recordal of this assignment, I, an ASSIGNOR signing below, hereby authorize and request my attorney to insert below the filing date and application number when they become known.

(d) ☒ U.S. application no.: 09/395,073 filed on September 13, 1999

(e) ☐ International application no. PCT / \_\_\_\_\_ / \_\_\_\_\_  
filed on \_\_\_\_\_

(f) ☐ U.S. patent no. \_\_\_\_\_ issued \_\_\_\_\_

☐ A change of address to which correspondence is to be sent regarding patent maintenance fees is being sent separately.

(also check (g), if foreign application(s) is also being assigned)

- (g) ☒ and any legal equivalent thereof in a foreign country, including the right to claim priority and, in and to, all Letters Patent to be obtained for said invention by the above application or any continuation, division, renewal, or substitute thereof, and as to letters patent any reissue or re-examination thereof.

ASSIGNOR hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment;

ASSIGNOR further covenants that ASSIGNEE will, upon its request, be provided promptly with all pertinent facts and documents relating to said invention and said Letters Patent and legal equivalents as may be known and accessible to ASSIGNOR and will testify as to the same in any interference, litigation or proceeding related thereto and will promptly execute and deliver to ASSIGNEE or its legal representatives any and all papers, instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said invention and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the purposes thereof.

IN WITNESS WHEREOF, We have hereunto set hand and seal this

October 26, 1999  
Date of signing

WARNING: The date of signing must be the same as the date of execution of the application, if item (a) was checked above.

Wayne A. Loeb  
(type name of Inventor)

John J. Neumann, Jr.

Kaighan J. Gabriel

Wayne A. Loeb  
Signature of INVENTOR

John J. Neumann, Jr.  
Kaighan J. Gabriel

☐ Notarization or Legalization Page Added.

NOTE: No witnessing, notarization or legalization is necessary. If the assignment is notarized or legalized, then it will only be prima facie evidence of execution. 35 USC 261. Use next page if notarization is desired.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**  
**37 C.F.R. § 3.73(b) Statement**

Applicant(s): Wayne A. Loeb, John J. Neumann, Jr., Kaigham J. Gabriel

For: MEMS DIGITAL-TO-ACOUSTIC TRANSDUCER WITH ERROR CANCELLATION

Serial No.: 09/395,073

Filed: 13 September 1999

Carnegie Mellon University is the assignee of the entire right, title and interest in the patent application identified above by virtue of either:

- A. ☒ An assignment from the inventor(s) of the patent application identified above. The assignment was recorded in the United States Patent and Trademark office on 12 November 1999 at Reel 010390, Frame 0429, or for which a copy thereof is attached.

OR

- B. A chain of title from the inventor(s) of the patent application identified above to the current assignee as shown below:

1. From \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office on \_\_\_\_\_ at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.  
Copies of assignments or other documents in the chain of title are attached.

The undersigned (whose title is supplied below) is empowered to sign this statement on behalf of the assignee.

**Power of Attorney**

I hereby revoke all previous powers of attorney, if any, and appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

John E. Mrozinski  
Edward L. Pencoske  
Jenifer C. Slinsky

Reg. No. 46,179  
Reg. No. 29,688  
Reg. No. 46,064

Chiara F. Orsini  
Richard J. Coldren

Reg. No. P48,744  
Reg. No. 44,084

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**Thorp Reed & Armstrong**  
**One Oxford Centre, 14<sup>th</sup> Floor**  
**301 Grant St.**  
**Pittsburgh, PA 15219-1425**

**Declaration**

I hereby declare that my presentation of this paper constitutes a certification under 37 C.F.R. § 10.18, which provides, in part, that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and that further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful statements may jeopardize the validity of the application and any patent issuing therefrom.

Date

1/20/01

Signature

Name

Title

Susan Burkett

Susan Burkett

Associate Provost